

**SYSTEMATIC REVISION OF COMPOSITAE IN EGYPT. 8.
TRIBE CARDUEAE: CARDUUS AND ALLIED GENERA**

by

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1. INTRODUCTION

This paper is prepared in conjunction with the accounts on the *Compositae* published by various authors (FAYED, 1987), in preparation to a detailed account for the "Flora of Egypt".

Cardueae is one of the well represented tribes in Egypt, 19 genera including 52 species were reported by TACKHOLM 1974.

The present work included a critical revision of the species belonging to the genera: *Carduus*, *Notobasis*, *Cynara*, *Onopordum* and *Silybum*. The species of the remaining genera of *Cardueae* will be the subject of future accounts. Our investigations are based on sample herbarium material from CAI, CAIM, CAIRC and Assiut University as well as field studies.

2. KEY

- 1. Stem with spinose wings 2
- Stem without spinose wings 10
- 2. Receptacle honey-combed, with deep denticulately fringed pits 3
- Receptacle not honey-combed, with long bristles 4

- 3. Leaves white-wooly, longest spine of the involucre 4-5 cm (Fig 8) *Onopordum alexandrinum*
- Leaves green, longest spine of the involucre not exceeding 3 cm (Fig. 9) *Onopordum alexandrinum*

- 4. Capitula hemispherical to globose, more than 17 mm broad; flowers zygomorphic (corolla 2-lipped) 5
- Capitula cylindrical-oblong, less than 15 mm broad; flowers actinomorphic 6

- 5. Involucral bracts membranous-margined, outer bracts apparently shorter than median ones (Fig. 5); flowers up to 13 mm long *Carduus getulus*
- Involucral bracts not membranous-margined, outer and median bracts subequal; flowers more than 17 mm long *Carduus acanthoides*

- 6. Capitula solitary, on long peduncles (exceeding 5 cm); median involucral bracts suddenly contracted above the base into a linear prolongation (Fig. 1)
..... *Carduus argentatus*
- Capitula clustered, sessile, if solitary, then on short peduncles (up to 2 cm long); median involucral bracts not contracted or gradually contracted into a lanceolate prolongation 7

- 7. Basal involucral bracts much shorter (1/2 or less) than the others; uppermost leaves with stout spines, longer than the capitula *Carduus australis*
- Basal involucral bracts not or only a somewhat shorter than the rest; uppermost leaves not surpassing the capitula 8

- 8. Median involucral bracts glabrous or sparsely arachnoid on the back, the margin thin, scarious, glabrous *Carduus tenuiflorus*
- Median involucral bracts loosely or densely arachnoid on the back, the margin thick, not scarious, minutely ciliate 9

- 9. Involucral bracts ovate below, above the middle triangular, patent, glabrous
..... *Carduus pycnocephalus* var. *pycnocephalus*
- Involucral bracts oblong below, above the middle angustate, erect, + densely white tomentose
..... *Carduus pycnocephalus* var. *albidus*

- 10. Pappus-hairs scabridulus or barbellate, not plumose (Fig. 10) *Silybum marianum*
- Pappus-hairs, at least some of them, plumose 11

- 11. Uppermost leaves involucrate (Fig. 6)
..... *Notobasis syriaca*
- Uppermost leaves not involucrate (Fig. 7)
..... *Cynara cornigera*

3. SYSTEMATIC TREATMENT

3.1. *Carduus* L.

It comprises about 120 species widely distributed in Europe, the Mediterranean region, Central Asia and East Africa (KAZMI 1964 & MEIKLE 1985). According to DAVIS (1975), it is a very difficult genus comprising several poorly delimited taxa which need further studies especially on the shape of the involucre.

ASCHERSON & SCHWEINFURTH (1887) reported the occurrence of *Carduus argentatus* L. and *C. pycnocephalus* L. in Egypt while TÄCKHOLM (1974) added *C. arabicus* Jacq. ex Murray (= *C. australis* L. fil.).

The present study revealed the presence of six species including two varieties of which *C. acanthoides* L. and *C. tenuiflorus* Curt. are new records to the flora of Egypt.

3.1.1 *Carduus acanthoides* L., Sp. Pl. 821 (1753); Kazmi in Mitt Bot. München 5: 354 (1964); Davis, Fl. Turkey 5: 430 (1975).

Distribution: Rare in moist habitats of the Mediterranean coastal land. Known also from Europe.

Specimens examined: El-Hammam, 2721929, SHABETAI Z 1202 (CAIM).

3.1.2 *Carduus argentatus* L., Mant. 280 (1771); Boiss., Fl. Orient. 3 522 (1875); Aschers. & Schweinf. in Mem. Inst. Egypt. 2: 95 (1887); Sickenb. in Mem. Inst. Egypt. 4(2): 248 (1901); Muschler, Man. Fl. Egypt. 2: 1026 (1912); Ramis, Best.-Tabell. Fl. Aegypt.: 200 (1929); Kazmi in Mitt. Bot. München 5: 453 (1964); (1964); Täckh., St. Fl. Egypt: 532 (1974); Davis, Fl. Turkey 5: 432 (1975); Zohary, Fl. Palaest. 3: 376 (1978).

Distribution: Uncommon in rocky habitats of the Mareotis sector of the Mediterranean coastal land. Known also from Libya, Palaestine, Syria, Cyprus and Turkey.

Specimens examined: Alexandria, 17.4.1958, BOULOS s.n. (CAI).

3.1.3 **Carduus pycnocephalus** L., Sp. Pl. 1151 (1753); Boiss., Fl. Orient. 3: 520 (1785); Aschers. & Schweinf. in Mem. Inst. Egypt. 2: 94 (1887); Sickenb. in Mem. Inst. Egypt. 4(2): 248 (1901); Muschler, Man. Fl. Egypt 2: 1026 Ramis, Best.-Tabell. Fl. Aegypt.: 200 (1929); Kazmi in Mitt. Bot. München 5: 444 (1964); Täckh., St. Fl. Egypt: 532 (1964); Davis, Fl. Turkey 5: 432 (1975).

1. var. **pycnocephalus**

Distribution: Common along the Mediterranean coastal land, becoming uncommon southwards. Known from W & S. Europe, N Africa, eastwards to Turkey.

Specimens examined: Rosetta, 20.4.1983, IBRAHIM et al. s.n. (CAI); Alexandria, 21.4.1927, SIMPSON 4720 (CAIM); Alexandria, 29.4.1938, KHATTAB 4463 (CAIM); Alexandria, 23.3.1956, V. TÄCKHOLM & EL-HADIDI s.n. (CAI); Alexandria, 3.7.1966, KHATTAB 1425 (CAIM); Burg El Arab, 12.4.1948, SHABETA I 6872 (CAIM); El-Alamein, 25.3.1974, V. TÄCKHOLM et al. s.n. (CAI).

2. var. **albidus** (M. Bieb.) Boiss., Fl. Orient. 3: 321 (1875).

Syn.: *C. albidus* M. Bieb., Fl. Taur.-Cauc. 2: 269 (1808).

C. tenuiflorus Curt. var. *albidus* (M. Bieb.) DC., Prodr. 6: 626 (1837).

C. pycnocephalus L. subsp. *albidus* (M. Bieb.) Kazmi in Mitt. Bot. München 5: 446 (1964).

Distribution: Uncommon along the Mediterranean coastal land. Known from Afghanistan, Bulgaria, Cyprus, Iraq eastwards to Turkey.

Specimens examined: Mariut, 25.3.1927, G. TÄCKHOLM s.n. (CAI); Burg el Arab, 12.4.1948, SHABETA I s.n. (CAIM).

3.1.4 **Carduus australis** L. fil., Suppl.: 348 (1781); Feinbrun-Dothan, Fl. Palaest. 3: 376 (1975).

Syn.: *Carduus arabicus* Jacq. ex Murray, Syst. Veg.: 714 (1784); Kazmi in Mitt. Bot. München 5: 449 (1964); Täckh., St. Fl. Egypt: 534 (1974).

Carduus pycnocephalus L. var. *arabicus* (Jacq.) Boiss., Fl. Orient. 3: 521 (1875); Täckh., St. Fl. Egypt: 41 (1956).

Carduus pycnocephalus L. subsp. *arabicus* (Jacq. ex Murray) Nyman, Consp: 414 (1879); Davis, Fl. Turkey 5: 436 (1975).

Distribution: Confined in Egypt to Sinai. Also known from Palaestine, Arabia, Iraq, eastwards to Turkey.

Specimens examined: Wadi El-Arish, 5.4.1939, DRAR s.n. (CAIM); Wadi Heridin, 4.4.1939, DRAR s.n. (CAIM); El-Ge-deirat, 6.4.1939, DRAR s.n. (CAIM); Wadi El-Mashabba, 24.4.1959, BOULOS 1959 (CAIM); Wadi Isla, April 1940, HAS-SIB s.n. (CAI); Wadi Feiran, 10.5.1956, EL-HADIDI s.n. (CAI); Geneinet el Arbain, St. Catherine, 16.4.1937, SHABE-TAI Z 4003 (CAIM); Deir El Arbain, 12.5.1956, V. TACKHOLM s.n. (CAI); El-Rabba, 23.4.1961, EL-HADIDI s.n. (CAI).

3.1.5 **Carduus tenuiflorus** Curt., Fl. Lond.: 6 t. 55 (1777); Kazmi, Mitt. Bot. München 5: 447 (1964).

Syn.: *Carduus pycnocephalus* L. var. *tenuiflorus* (Curt.) Fiori in Fiori & Paol., Fl. Anal. It. 3: 360 (1904).
Carduus pycnocephalus L. subsp. *tenuiflorus* (Curt.) Arènes, Notes Syst. (Paris) 15: 397 (1959).

Distribution: Rare in the deltaic sector of the Mediterranean coastal land. Known from Algeria and W Europe.

Specimens examined: Beheira, 12.1.1909, MAIRE 597 (CAI).

3.1.6 **Carduus getulus** Pomel, Nouv. Mat. Fl. Atlant. 2: 275 (1875); Kazmi in Mitt. Bot. München 5: 341 (1964); Täckh., St. Fl. Egypt: 532 (1974); Davis, Fl. Turkey 5: 438 (1975); Feinbrun-Dothan, Fl. Palaest. 3: 376 (1978); Alavi in Jafri & El-Gadi, Fl. Lib.: (1983).

Distribution: Common desert annual in plains and Wadi beds; also in the Mediterranean coastal land. Known from Marocco, Algeria, Tunis, Lybia, eastwards to Palaestine and Iraq.

Specimens examined: Rafah, 22.3.1928, G. TACKHOLM s.n. (CAI); Bir Lehfen, 21.3.1928, G. TACKHOLM s.n. (CAI); El-Arish, 30.1.1929, SHABETAI Z 460 (CAIM); Gebel El-Halal & Gebel El-Maghara, 24.4.1959, BOULOS s.n. (CAI); Amryia, 21.4.1950, SHABETAI Z 4343 (CAIM); Burg el Arab, 8.4.1955, V. TACKHOLM s.n. (CAI); Ras el Hekmah, 2.6.1964, V. TACKHOLM et al. s.n. (CAI); El-Dabaa, 16.2.1972, GIRGIS s.n. (CAIM); Mersa Matruh, 29.3.1927, SIMPSON 4580 (CAIM), Matruh to Barrani, 2.4.1932, SHABETAI Z 1726 (CAIM); Alamein, 16.3.1958, Sa'ad 151 (CAIM); Qena, 15.4.1977, CHRTEK et al. s.n. (CAI).

3.2. *Notobasis* (Cass.) Cass.

Notobasis is a monotypic genus which is widely distributed in the Mediterranean Basin, eastwards to Iran. It was first recorded in Egypt by ASCHERSON & SCHWEINFURTH (1887).

3.2.1 *Notobasis syriaca* (L.) Cass. in Dict. Sci Nat., 35: 171 (1825); Boiss., Fl. Orient. 3: 553 (1875); Aschers. & Schweinf. in Mém. Inst. Egypt. 2: 95 (1887); Täckh., St. Fl. Egypt: 42 (1956); Kupicha in Davis, Fl. Turkey 5 419 (1975); Feinbrun-Dothan, Fl. Palaest. 3: 377 (1978); Alavi in Jafri & El-Gadi, Fl. Lybia: 236 (1983).

Syn.: *Carduus syriacus* L., Sp. Pl.: 823 (1753).
Cirsium syriacum (L.) Gaertner, De Fruct., 2: 283, t. 163, fig. 2 (1791); Muschler, Man. Fl. Egypt 2: 1027 (1912); Ramis, Best.-Tabell. Fl. Aegypt.: 201 (1929); Täckh., St. Fl. Egypt: 534 (1974).
Cnicus syriacus Willd., Sp. Pl. 3: 1683 (1803).

Distribution: Rare along the Mediterranean coastal land of Egypt. General distribution that of the genus.

Specimens examined: Sinai, Sheikh Zoayyed, 3.4.1988, ABD-EL-GHANI & EL-GRAF s.n. (CAI); Mersa Matruh, 30.3.1968, GUN ROMEE s.n. (CAI); Mersa Matruh, 29.3.1927, SIMPSON 4587 (CAIM); Mersa Matruh, 18.4.1934, SHABETAI Z 3160 (CAIM); Barrani to Sollum, 2.4.1932, SHABETAI Z 2013 (CAIM); Kafr el Zayat, 27.6.1966, KHATTAB 1427 (CAIM); Kirdasa, 23.5.1936, KHATTAB E 248 (CAIM); Dahshur, 14.4.1922, SIMPSON 1039 (CAIM); Abu Zaabal, 26.2.1930, SHABETAI Z 2056 (CAIM); Toukh, 17.3.1913, BOLLAND s.n. (CAIM).

3.3. *Cynara* L.

The genus *Cynara* includes 10 species, distributed in the Mediterranean region and Western Asia (MEIKLE, 1985)

It is represented in Egypt by one species: *Cynara cornigera* Lindley, which was first recorded by ASCHERSON & SCHWEINFURTH (1887) as *Cynara sibthorpiana* Boiss. & Heldr.; a name used by scholars of the Egyptian flora ever since.

3.3.1 *Cynara cornigera* Lindley in Sibth. & Sm., Fl. Graec., 9: 25 (1837); Kupicha in Davis, Fl. Turkey 5: 329 (1975); Meikle, Fl. Cyprus 2: 962 (1985).

Syn.: *Cynara sibthorpiana* Boiss. & Heldr. in Boiss. Diagn., ser. 1, 10: 94 (1849); Boiss., Fl. Orient. 3: 557 (1875); Aschers. & Schweinf. in Mém. Inst. Egypt. 2: 95 (1887); Muschler, Man. Fl. Egypt 2: 1028 (1912); Ramis, Best.-Tabell. Fl. Aegypt.: 195 (1929); Täckh., St. Fl. Egypt: 44 (1956) & ed. 2: 536 (1974).

Distribution: Rare on rocky-crevices along the Mediterranean coastal lang. Also in S Greece, Aegean Islands, Cyprus, Lybia and Turkey.

Specimens examined: Burg el Arab, 8.4.1955, EL-HADIDI s.n. (CAI); Bahig, 25.4.1925, SIMPSON 3309 (CAIM); Bahig, 20.3.1934, SHABETAI Z 4461 (CAIM); Mariut, 16.4.1935, SHABETAI Z 4768 (CAIM).

3.4. *Onopordum* L.

Comprises about 50 species in Europe, N Africa and Western Asia; two species occur in Egypt.

3.4.1 *Onopordum ambiguum* Fresen., Mus. Senckenb. 1: 85 (1834); Boiss., Fl. Orient. 3: 562 (1875); Aschers. & Schweinf. in Mém. Inst. Egypt.: 765 (1889); Muschler, Man. Fl. Egypt 2: 1030 (1912); Ramis, Best.-Tabell. Fl. Aegypt.: 200 (1929); Täckh., St. Fl. Egypt.: 45 (1956) & ed. 2: 538 (1974); Feinbrun-Dothan, Fl. Palaest. 3: 385 (1978).

Distribution: Confined in Egypt to gravelly and rocky habitats of the Eastern Desert and Sinai. Known also from Palaestine.

Specimens examined: Deir el Arabian, 11.6.1927, KAISER s.n. (CAIM); Wadi el-Lega, Sinai, 6.5.1939, DRAR s.n. (CAIM); Naqb el Hawa, Sinai, April 1940, HASSIB s.n. (CAI).

3.4.2 *Onopordum alexandrinum* Boiss., Diagn., ser. 1, 10: 93 (1849); Täckh., St. Fl. Egypt: 45 (1956) & ed. 2: 538 (1974); Feinbrun-Dothan, Fl. Palaest. 3: 386 (1978).

Syn.: *Onopordum sibthorpiatum* Boiss. & Heldr. var. *alexandrinum* (Boiss.) Boiss., Fl. Orient. 3: 562 (1875); Aschers. & Schweinf. in Mém. Inst. Egypt. 2: 95 (1887); Muschler, Man. Fl. Egypt 2: 1030 (1912); Ramis, Best. Tabell. Fl. Aegypt.: 200 (1929).

Distribution: Common along the Mediterranean coastal land and mountainous Sinai. Known from S. Palaestine.

Specimens examined: Burg el Arab, 23.4.1929, BRAR s.n. (CAIM); Burg el Arab, 10.5.1961, SHAROBIM s.n. (CAIM); Mariut, 24.4.1928, BRAR s.n. (CAIM); Hammam, 22.4.1929, DRAR s.n. (CAIM); El-Qasr, Matruh, 24.5.1935, DRAR s.n. (CAIM).

3.5. *Silybum* Adans.

Silybum is a small genus comprising two species distributed in the Mediterranean area and W Asia. One species occurs in Egypt.

3.5.1 *Silybum marianum* (L.) Gaertner, De Fruct., 2: 378 (1791); Boiss., Fl. Orient. 3: 556 (1875); Aschers. & Schweinf. in Mém. Inst. Egypt. 2: 95 (1887); Muschler, Man. Fl. Egypt 2: 1029 (1912); Ramis, Best.-Tabell. Fl. Aegypt.: 200 (1929); Täckh., St. Fl. Egypt: 44 (1956) & ed. 2: 536 (1974); Kupicha in Davis, Fl. Turkey 5: 369 (1975); Feinbrun-Dothan, Fl. Palaest. 3: 282 (1978); Alavi in Jafri & El-Gadi, Fl. Lybia: 255 (1983).

Syn.: *Carduus marianus* L., Sp. Pl. 823 (1753).

Distribution: Field margins, waste places and along the Nile banks and the main irrigation canals, also in the Oasis. Known from the Mediterranean region, eastwards to Iran and Afghanistan; now naturalized in many parts of Europe and elsewhere.

Specimens examined: Gebel Lehfen, 17.3.1928, SHABETAI s.n. (CAIM); Kafr el Zayat, 28.6.1966, KHATTAB s.n. (CAIM); Shebein el Qanater, 7.3.1924, SIMPSON 2469 (CAIM); Shubra, 2.6.1929, SHABETAI Z 3915 (CAIM); Giza pyramids, 23.3.1932, DRAR s.n. (CAIM); Baharia Oasis, Bawiti, 20.3.1940, DRAR s.n. (CAIM); Kom Ombo, 12.5.1959, ABDALLAH s.n. (CAIM).

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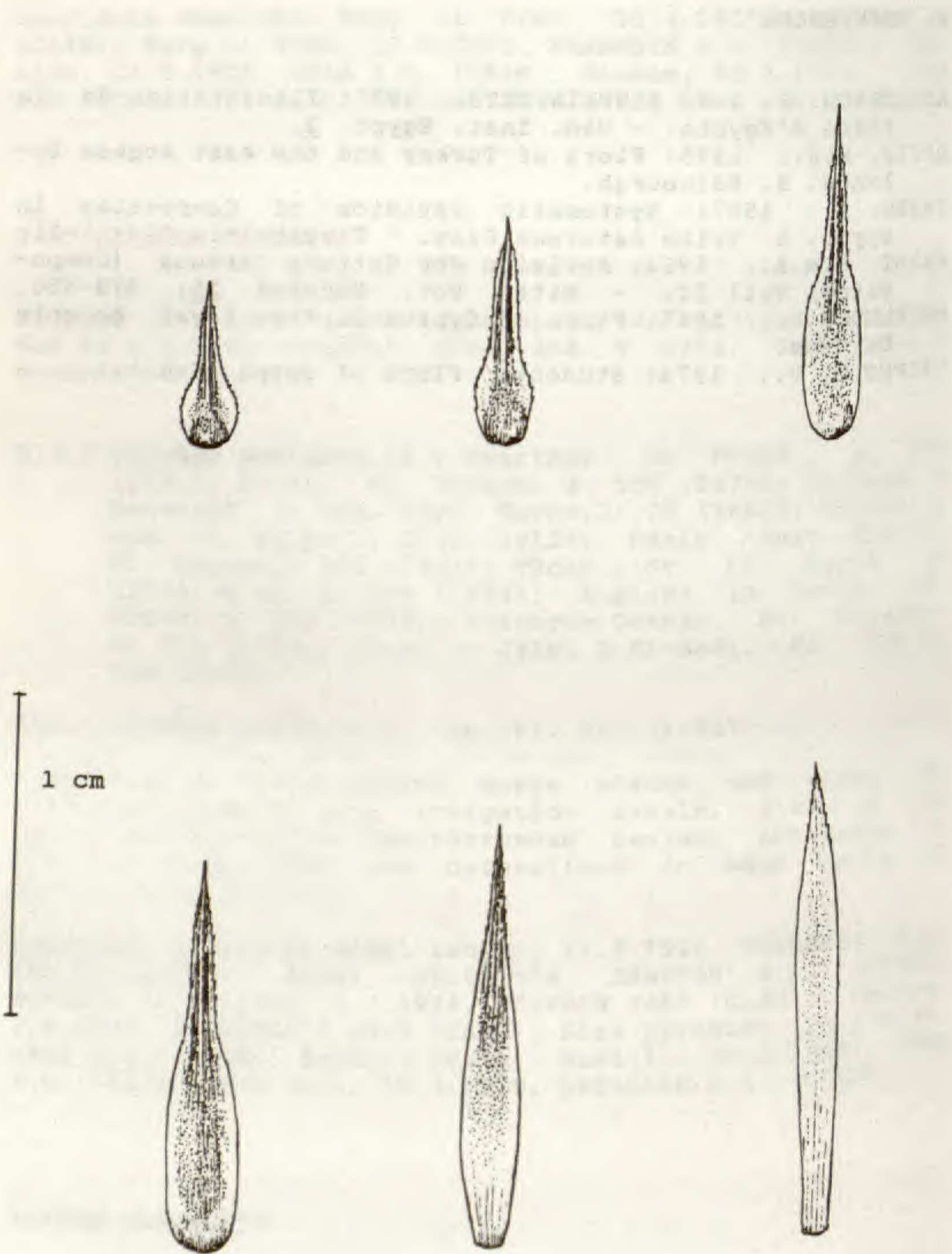


Fig. 1: Involucral bracts of Carduus argentatus

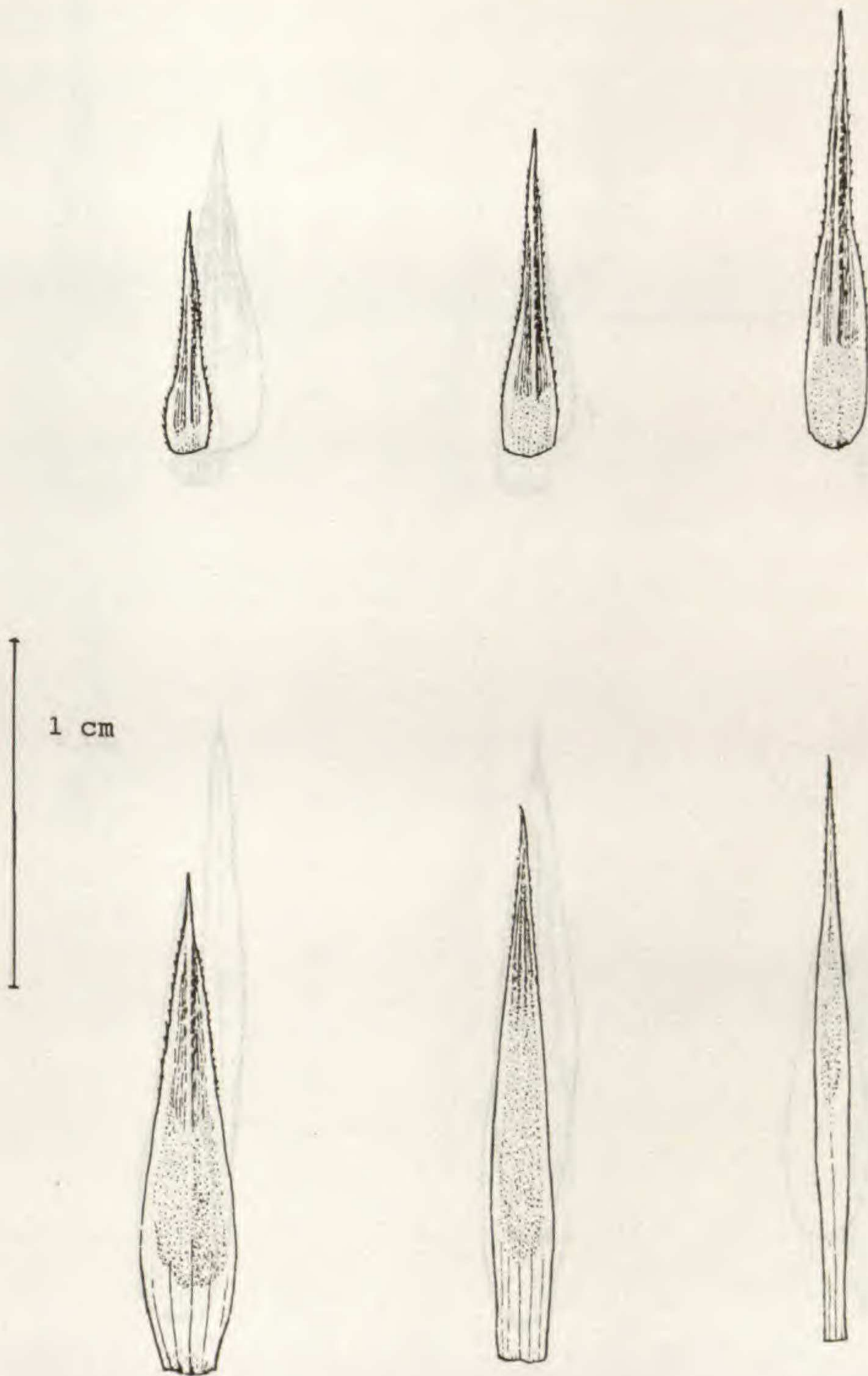


Fig. 2: Involucral bracts of Carduus pycnocephalus
var. pycnocephalus (x5).



1 cm

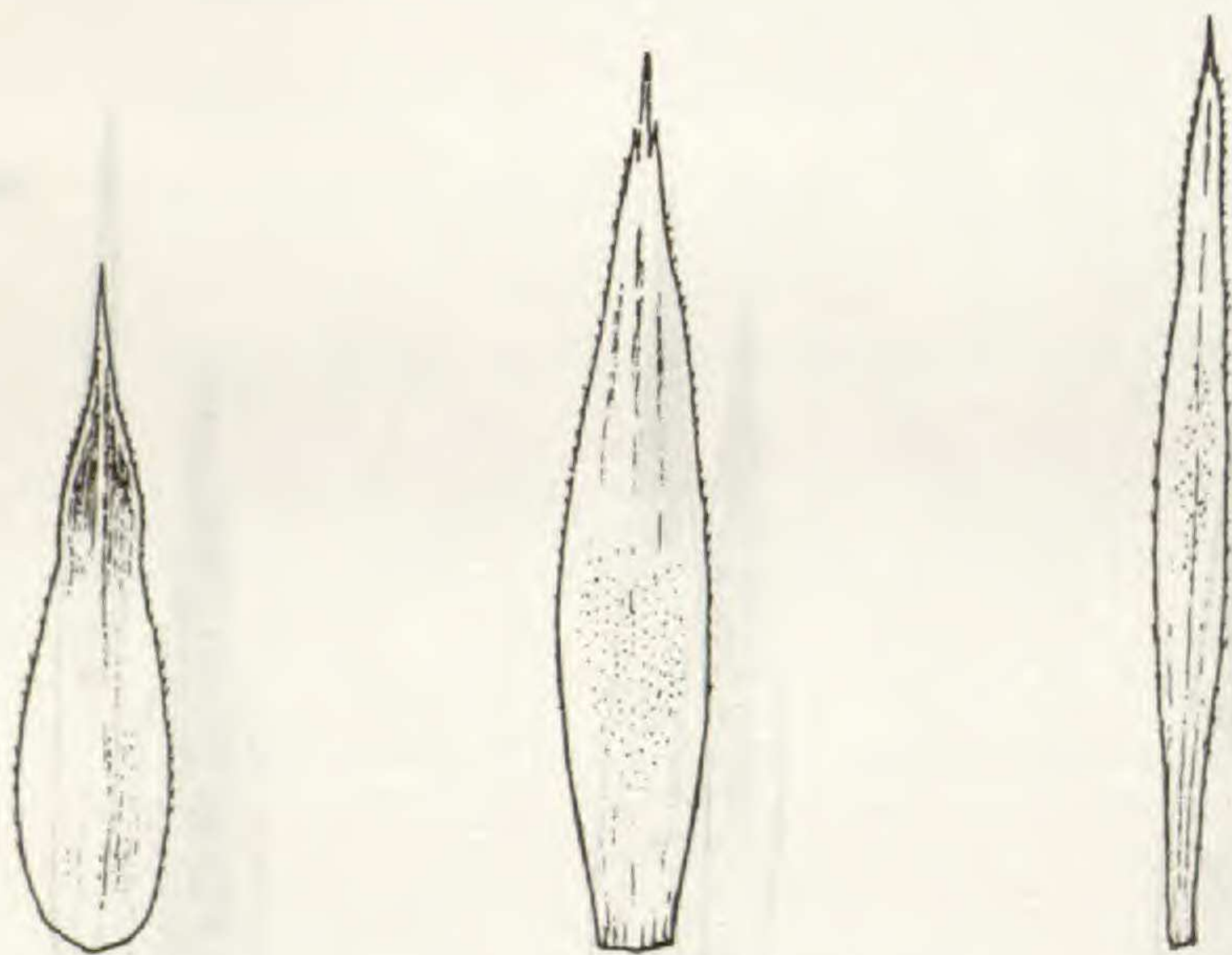


Fig. 3: Involucral bracts of Carduus australis



1 cm



Fig. 4: Involucral bracts of Carduus tenuiflorus

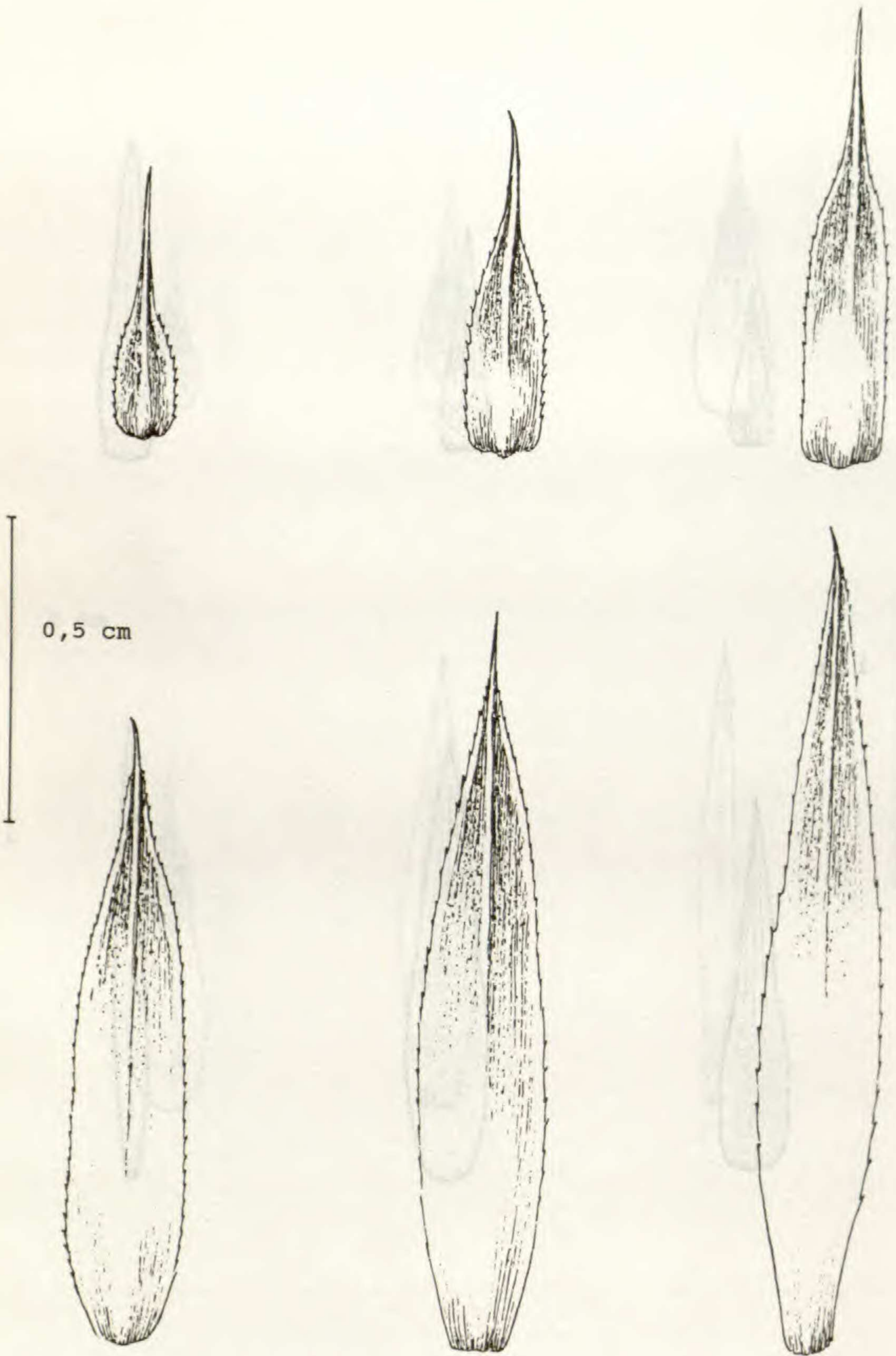
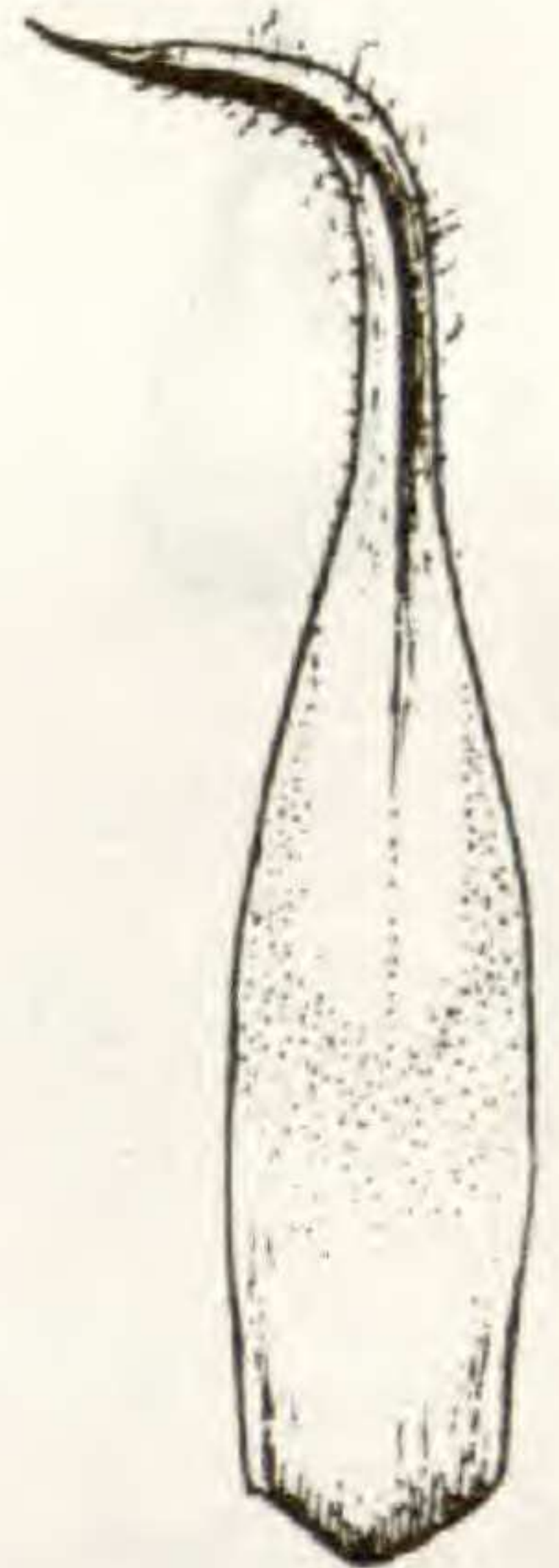


Fig. 5: Involucral bracts of Carduus getulus



1 cm

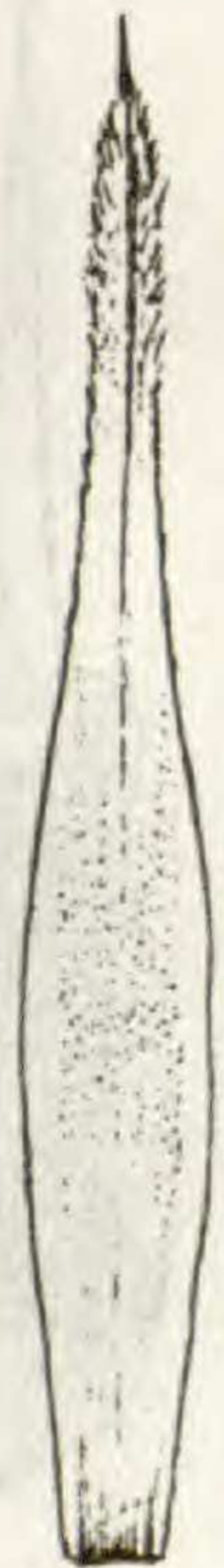
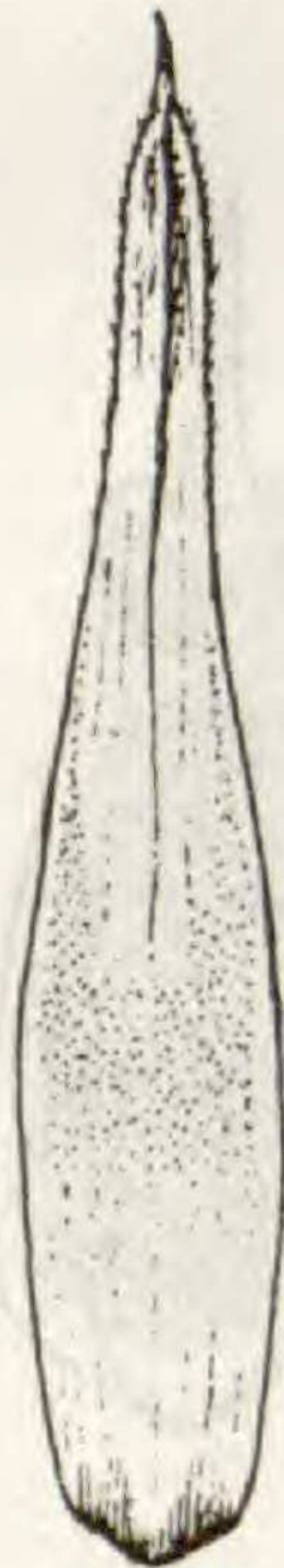


Fig. 6: Involucral bracts of Notobasis syriaca

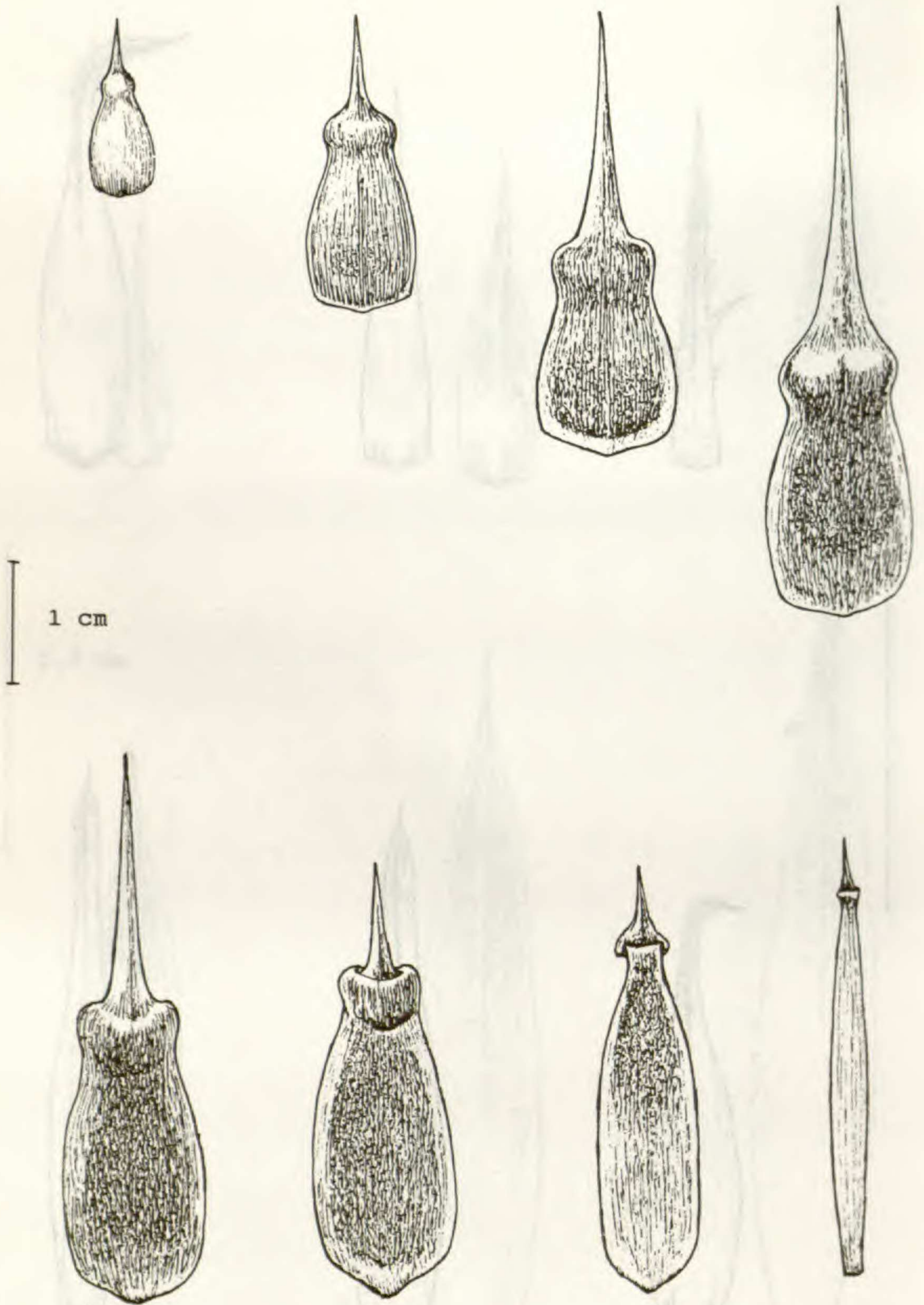


Fig. 7: Involucral bracts of Cynara cornigera

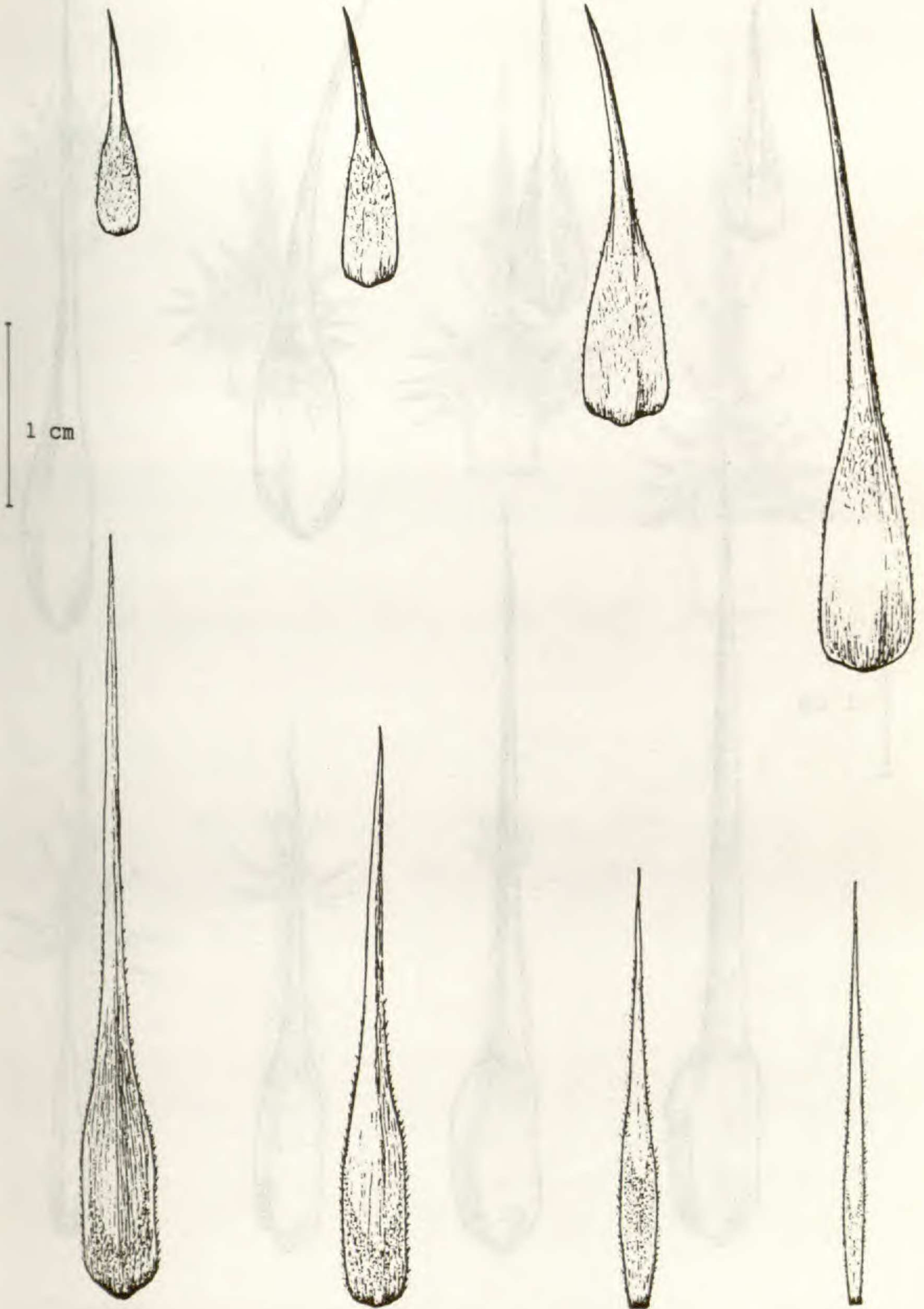


Fig. 8: Involucral bracts of Onopordum ambiguum

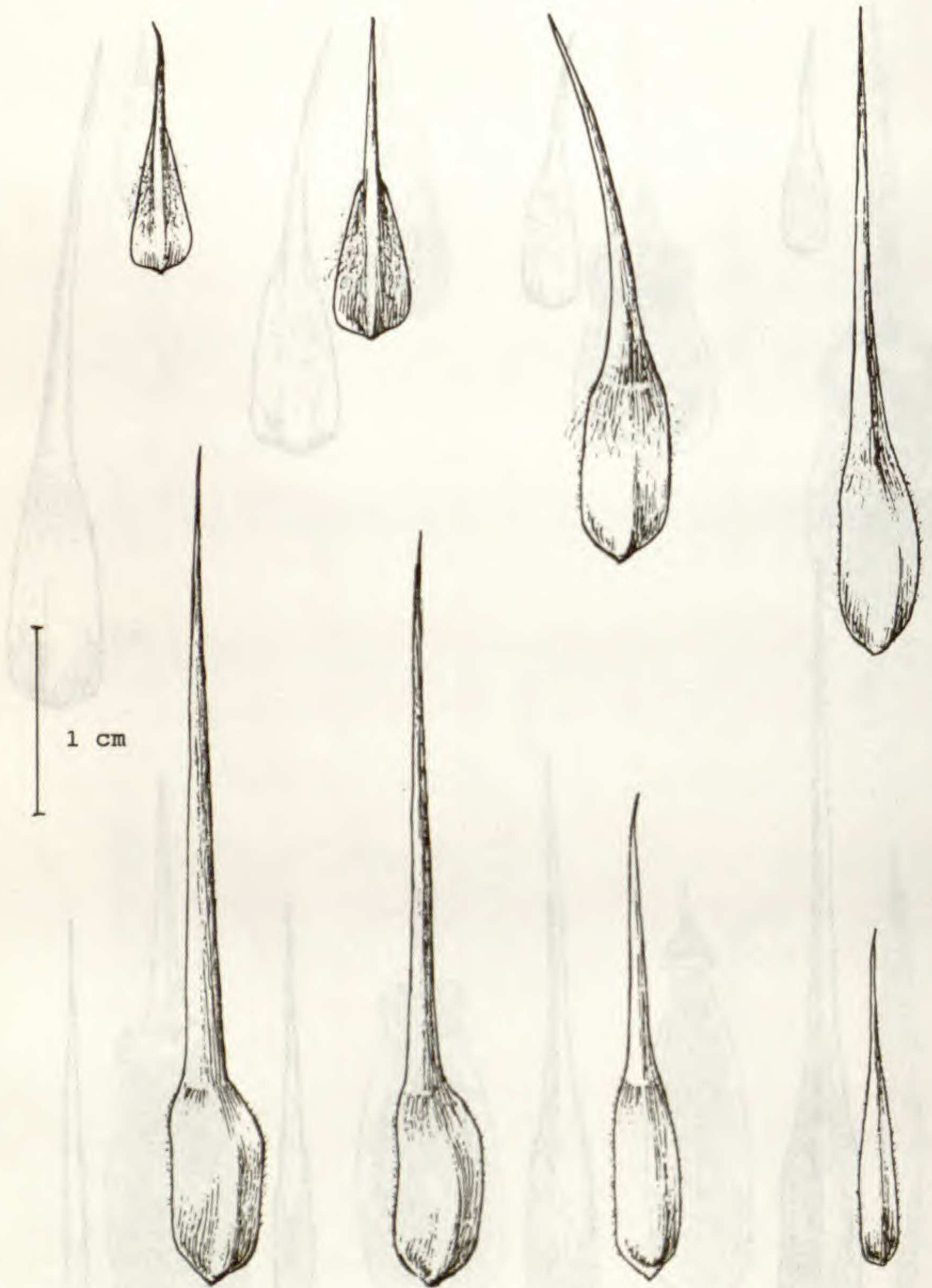


Fig. 9: Involucral bracts of Onopordum alexandrinum

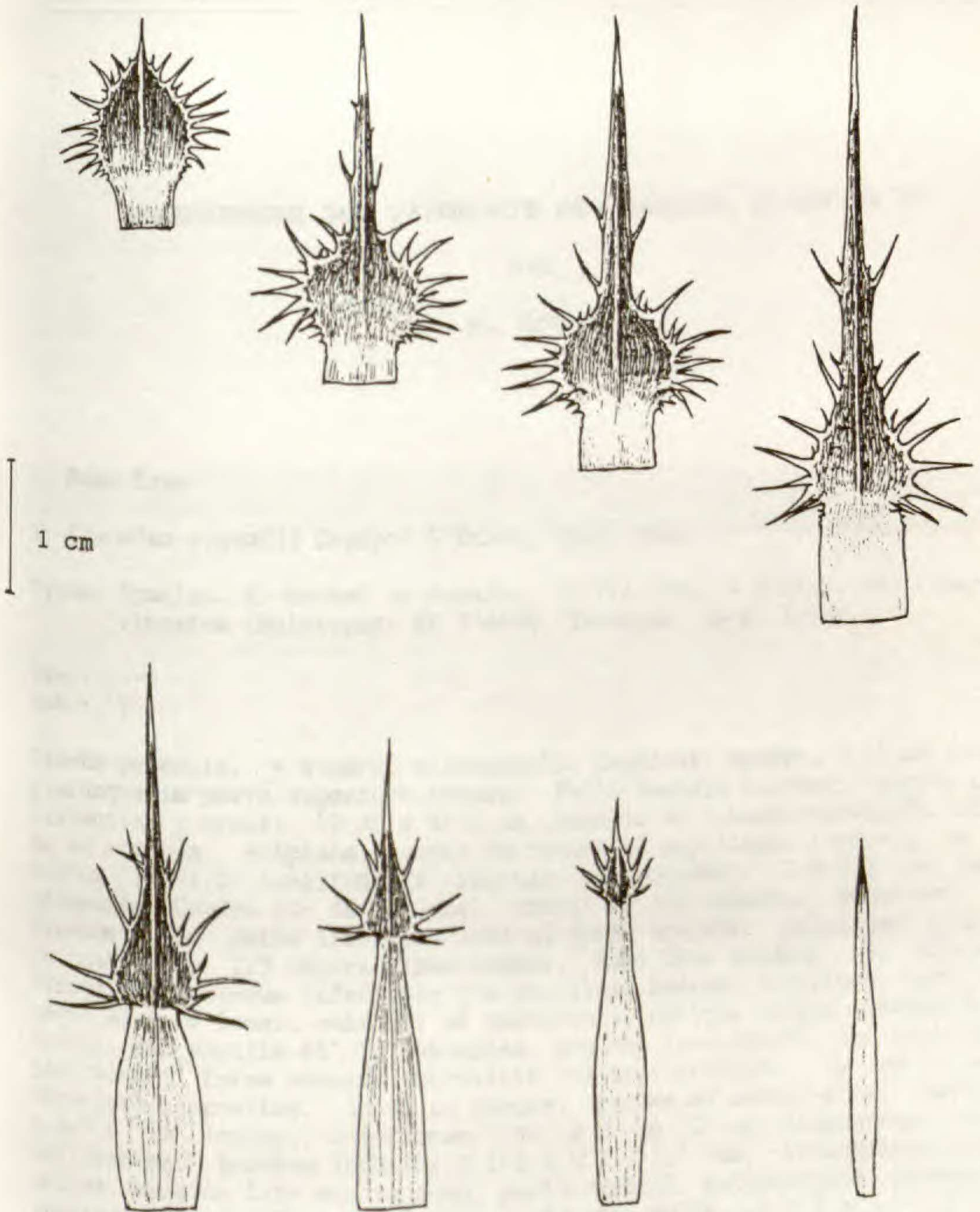


Fig. 10: Involucral bracts of Silybum marianum